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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/542,432

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Christopher Raymond Jones

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EXAMINER

GODENSCHWAGER, PETER F

ART UNIT

PAPER NUMBER

1767

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/542,432	Applicant(s) JONES, CHRISTOPHER RAYMOND	
	Examiner PETER F. GODENSCHWAGER	Art Unit 1767	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 20-32,35,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 20-32,35,38 and 39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 9, 2010 has been entered.

Applicant's reply filed December 9, 2010 has been fully considered. Claims 20, 35, and 38 are amended; and claims 20-32, 35, 38, and 39 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20-22, 26-32 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777).

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Regarding Claims 20, 21, 22, 26, 31, 32, and 39: Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a 75% by weight solids content slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a composition in a homogeneous phase without instantaneous heterogeneous thickening) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking (Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions (preserve

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the slurry against bacterial contamination) and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Regarding Claim 27: Freeman et al. teaches that the acrylic acid has a MW in the range of 500-12,000 (8:55-60).

Freeman et al. does not teach the specific range of 2000-5000. However, as the disclosed ranges of Sarver et al. encompass the claimed range, a *prima facie* case of obviousness exists for the claimed range (see MPEP 2144.05).

Regarding Claims 28-30: Freeman et al. and Ajoku et al. do not teach the specific or relative amounts of tetrakis (hydroxymethyl) phosphonium salt and dispersant (Freeman et al., 9:64-10:5; Ajoku et al. Pg. 7, Ln. 19 to Pg. 8, Ln.10). However, it is common practice in the art to optimize the absolute and relative amounts of result effective variables such as biocide and dispersant (see MPEP 2144.05). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the amount of tetrakis (hydroxymethyl) phosphonium salt added and would have been motivated to do so because Ajoku et al. teaches that it is well within the ordinary skill of one practicing the art to determine the effective amount of biocide for a given system base on various system parameters including size of the system, pH, types of organisms present and the amount of control desired (Pg. 7, Lns. 19-27). At the time of the invention, a person of ordinary skill in the art would have found it obvious to optimize the amount of dispersant present and would have been motivated to do so because Freeman et al. teaches that the amount of dispersant should be added as needed to achieve a minimum in slurry viscosity (9:64-10:5).

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Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777) as applied to claim 20 above, and further in view of Ralston (US Pat. No. 3,336,221).

Freeman et al. in view of Ajoku et al. render obvious the composition of claim 20 as set forth above.

Freeman et al. does not teach that the dispersant is a tetrasodium salt of nitrilo-tris(methylene phosphonate). However, Ralston teaches a tetrasodium salt of nitrilo-tris(methylene phosphonate) for solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6). Freeman et al. and Ralston are analogous art because they are concerned with a problem of similar technical difficulty, namely forming stable mixtures of calcium carbonate and water using organic dispersants. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the dispersant of Ralston to replace the dispersant of Freeman et al. and would have been motivated to do so because Ralston teaches that the tetrasodium salt of nitrilo-tris(methylene phosphonate) is effective at chelating and solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6), and Freeman et al. teaches that the organic dispersant chosen may be selected from dispersants and dispersing aids generally known in the art for the dispersion of calcium carbonate (8:40-50).

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777) and Ralston (US Pat. No. 3,336,221).

Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a

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composition in a homogeneous phase without instantaneous heterogeneous thickening) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking (Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the and tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions (preserve the slurry against bacterial contamination) and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Freeman et al. does not teach that the dispersant is a tetrasodium salt of nitrilo-tris(methylene phosphonate). However, Ralston teaches a tetrasodium salt of nitrilo-

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tris(methylene phosphonate) for solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6). Freeman et al. and Ralston are analogous art because they are concerned with a problem of similar technical difficulty, namely forming stable mixtures of calcium carbonate and water using organic dispersants. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the dispersant of Ralston to replace the dispersant of Freeman et al. and would have been motivated to do so because Ralston teaches that the tetrasodium salt of nitrilo-tris(methylene phosphonate) is effective at chelating and solubilizing/dispersing calcium carbonate (1:5-30; 2:25-45; Claim 6), and Freeman et al. teaches that the organic dispersant chosen may be selected from dispersants and dispersing aids generally known in the art for the dispersion of calcium carbonate (8:40-50).

Claim 38 is rejected under 35 U.S.C. 103(a) as being unpatentable over Freeman et al. (US Pat. No. 6,402,824) in view of Ajoku et al. (Intl. Pub. No. WO 00/04777).

Freeman et al. teaches a method comprising adding a polyacrylic acid dispersant to a slurry of calcium carbonate (9:60-10:5 and 8:40-55) and maintaining the slurry as a slurry (a composition in a homogeneous phase without instantaneous heterogeneous thickening) for further use (12:34-36).

Freeman et al. does not teach the addition of a tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride. However, Ajoku et al. teaches the addition of tetrakis (hydroxymethyl) phosphonium sulfate or tetrakis (hydroxymethyl) phosphonium chloride to dispersed pigment slurries such as calcium carbonate in papermaking (Pg. 2, Lns. 15-20; Pg. 3, Lns. 15-25; Pg. 4, Lns. 5-10). While the combined teaching of

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Freeman et al. and Ajoku et al. do not suggest adding the dispersant and tetrakis (hydroxymethyl) phosphonium salt as a single composition vs. separate additions, it is noted that changes in the sequence of addition are *prima facie* obvious in the absence of new or unexpected results [see MPEP 2144.04 (IV)]. Freeman et al. and Ajoku et al. are analogous art because they are concerned with the same field of endeavor, namely additives and processing of slurries for papermaking such as calcium carbonate. At the time of the invention, a person of ordinary skill in the art would have found it obvious to use the and tetrakis (hydroxymethyl) phosphonium salt of Ajoku et al. in the slurry of Freeman et al. and would have been motivated to do so because Ajoku et al. teaches that it is essential that pigment slurries, especially those of calcium carbonate used in paper products, have a very low microorganism count per gram of sample and the tetrakis (hydroxymethyl) phosphonium salts act as a biocide in such compositions (preserve the slurry against bacterial contamination) and are safe for the environment (Pg. 2, Ln. 29 to Pg. 3, Ln. 15; Pg. 4, Lns. 10-20).

Response to Amendment

The declarations, one by Stephanie Edmunds (the "Edmunds" declaration) and one by Christopher Raymond Jones (the "Jones" declaration) under 37 CFR 1.132 filed December 9, 2010 are insufficient to overcome the rejection of claims 20-22, 26-32, 38, and 39 based upon Freeman et al. in view of Ajoku et al. or claims 23-25 and 35 based upon Freeman et al. in view of Ajoku et al. and Ralston as set forth in the last Office action because:

The declarations do not compare the claimed invention to that of the closest prior art, namely Freeman et al. [see MPEP 716.02(e)]. Freeman et al. already teaches a dispersant

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(polyacrylic acid) present in the slurry of calcium carbonate as set forth above. Therefore, any evidence of unexpected results must compare the claimed invention to that disclosed by Freeman et al., which is a calcium carbonate slurry with a polyacrylic acid dispersant. Currently, the evidence presented (see Pg. 3 of the Edmunds declaration) does not compare the addition of THPS to a slurry with polyacrylic acid dispersant.

The evidence presented in the Edmunds declaration is not commensurate in scope with the claimed invention [see MPEP 716.02(d)]. The experiments on Pg. 3 of the declaration use a calcium carbonate slurry of undisclosed concentration, with a specific amount of a mixture of THPS and dispersant of undisclosed ratio. Formulation 5 (the formulation used to illustrate the claimed invention) uses sodium salt of nitrilo-tris(methylene phosphonate) as the dispersant. However, independent claims 20, 35, and 38 are not limited to calcium carbonate as the inorganic material in the slurry, nor is the concentration of the inorganic material limited. It is not clear that the results presented on Pg. 3 of the declaration would be similarly observed for other inorganic materials, or with calcium carbonate slurries of differing concentrations. Independent claims 20 and 38 are not limited to the sodium salt of nitrilo-tris(methylene phosphonate) as the dispersant, in fact, claim 38 limits the dispersant to polyacrylic acid. Therefore with regards to the nature of the dispersant, the evidence presented is not commensurate in scope with the instant claims.

The opinion evidence presented in the Jones declaration is not sufficient to overcome the *prima facie* case of obviousness as presented above. The Jones declaration states that there is no reason for a skilled artisan to think he should include a dispersant when adding a THP⁺ salt, and that the inventor recognized that there was a need for a dispersant to also be added when THP⁺

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salts are to be used as a biocide for slurries. However, the prior art already recognizes the need for including dispersants in slurries of calcium carbonate for use in papermaking as set forth above. Freeman et al., the primary reference, already includes a polyacrylic acid dispersant to a slurry of calcium carbonate as set forth above. Therefore, one of ordinary skill in the art would not need to modify the disclosure of Freeman et al. or decide to add a dispersant, as one is already disclosed by Freeman et al. Furthermore, Ajoku et al. explicitly states that the THP⁺ salts may be added to “dispersed fillers and pigments in papermaking” (Pg. 2, Lns. 15-20). The secondary references itself suggests that the THP⁺ salts are added to “dispersed” pigments, i.e. pigments in the presence of a dispersing agent. Therefore, the prior art of record would suggest that even without the presence of a dispersant in the Freeman et al. reference, one of ordinary skill in the art, when reading Ajoku et al., know that the THP⁺ salts should be added to pigments in the presence of a dispersant. In addition, it should be noted that there is no evidence on the record to support any criticality in adding the dispersant with the THP⁺ salt as opposed to adding the dispersant and the THP⁺ salt separately.

Response to Arguments

Applicant's arguments filed December 9, 2010 have been fully considered but they are not persuasive.

Applicant's arguments specifically directed toward the issues addressed in the declarations under 37 CFR 1.132 filed December 9, 2010, most notably Applicant's allegation of unexpected results with regards to the specific species of dispersant, have been responded to above.

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Applicant argues that there would have been no reason for one to consider including a dispersant when adding THP salts as this would incur an unnecessary expense. However, the prior art already recognizes the need for including dispersants in slurries of calcium carbonate for use in papermaking as set forth above. Freeman et al., the primary reference, already includes a polyacrylic acid dispersant to a slurry of calcium carbonate as set forth above. Therefore, one of ordinary skill in the art would not need to modify the disclosure of Freeman et al. or decide to add a dispersant, as one is already disclosed by Freeman et al.

Furthermore, Ajoku et al. explicitly states that the THP^+ salts may be added to “dispersed fillers and pigments in papermaking” (Pg. 2, Lns. 15-20). The secondary reference itself suggests that the THP^+ salts are added to “dispersed” pigments, i.e. pigments in the presence of a dispersing agent. Therefore, the prior art of record would suggest that even without the presence of a dispersant in the Freeman et al. reference, one of ordinary skill in the art, when reading Ajoku et al., know that the THP^+ salts should be added to pigments in the presence of a dispersant.

In addition, it should be noted that there is no evidence on the record to support any criticality in adding the dispersant with the THP^+ salt as opposed to adding the dispersant and the THP^+ salt separately.

Applicant argues that the skilled person would not realize that if he did select a THP salt as his biocide, this would cause his previously homogenous slurry to flocculate. However, as set forth above, Ajoku et al. explicitly states that the THP^+ salts may be added to “dispersed fillers and pigments in papermaking” (Pg. 2, Lns. 15-20). The secondary reference itself suggests that

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the THP⁺ salts are added to “dispersed” pigments, i.e. pigments in the presence of a dispersing agent.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PETER F. GODENSCHWAGER whose telephone number is (571)270-3302. The examiner can normally be reached on Monday-Friday 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Mark Eashoo can be reached on (571) 272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. F. G./
Examiner, Art Unit 1767

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1767